Implementing the Electronic Flight Bag

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Flight Standards and Technology

flightoperations
Flight Standards and Technology

AIRNET Agenda:

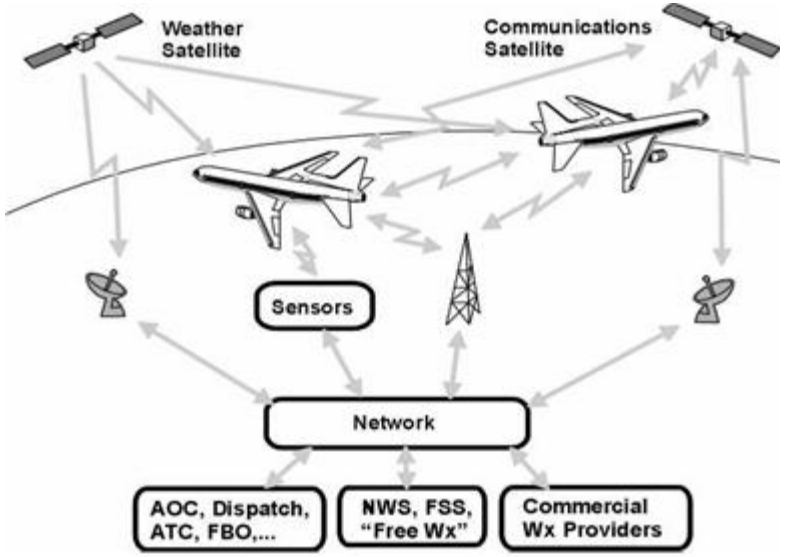
- Why do the EFB now?
- Our programs
  - NASA's Aviation Weather Information (AWIN) Trials
  - FAA's Safe Flight – 21 Trials
  - DOT's Rapid Response Team Cabin Surveillance Trials
- AIR_NET components
- The Process
- Moving Forward

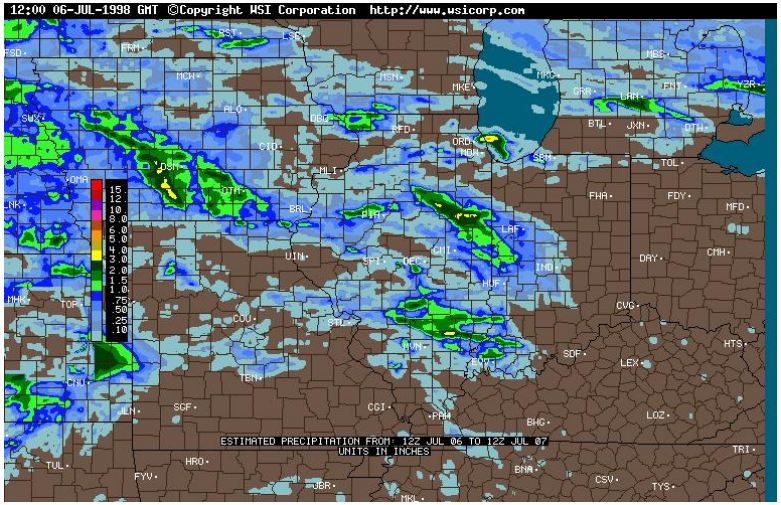
Communications: Weather information

Objective:

The WINCOMM project:

Advanced communications and information technologies to enable high quality, timely dissemination of aviation weather information to all relevant global aviation users.

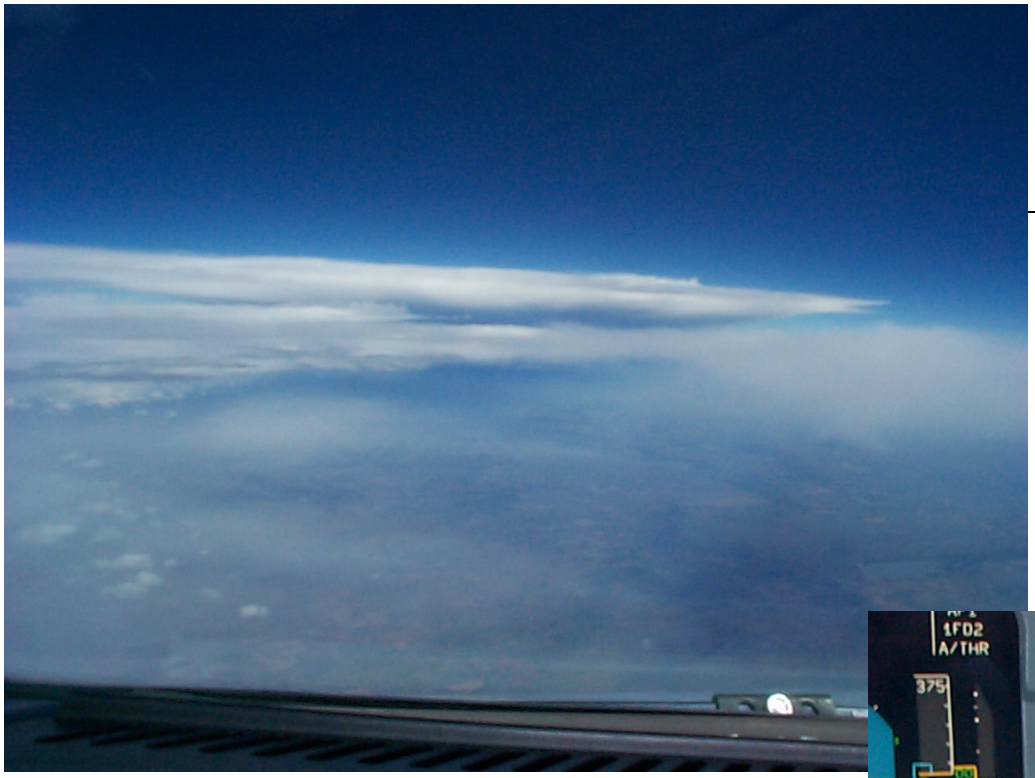




Enable high quality/graphical, timely weather information to all users promoting safety and efficiency.

Provide greater access/connectivity across all users/platforms on the information network, both airborne and ground-based, nationally as well as worldwide.

Promote an integrated global information network enabling collaborative decision-making further enhancing aviation safety.



Oklahoma TRW in/out view

AWIN weather on Honeywell WINN Display

Runway Incursion prevention:

Final Approach, Runway and Taxiway Occupancy Awareness

Other inputs: ADS-B, TIS-B (from ASDE-3X), EGPWS (RAAS)

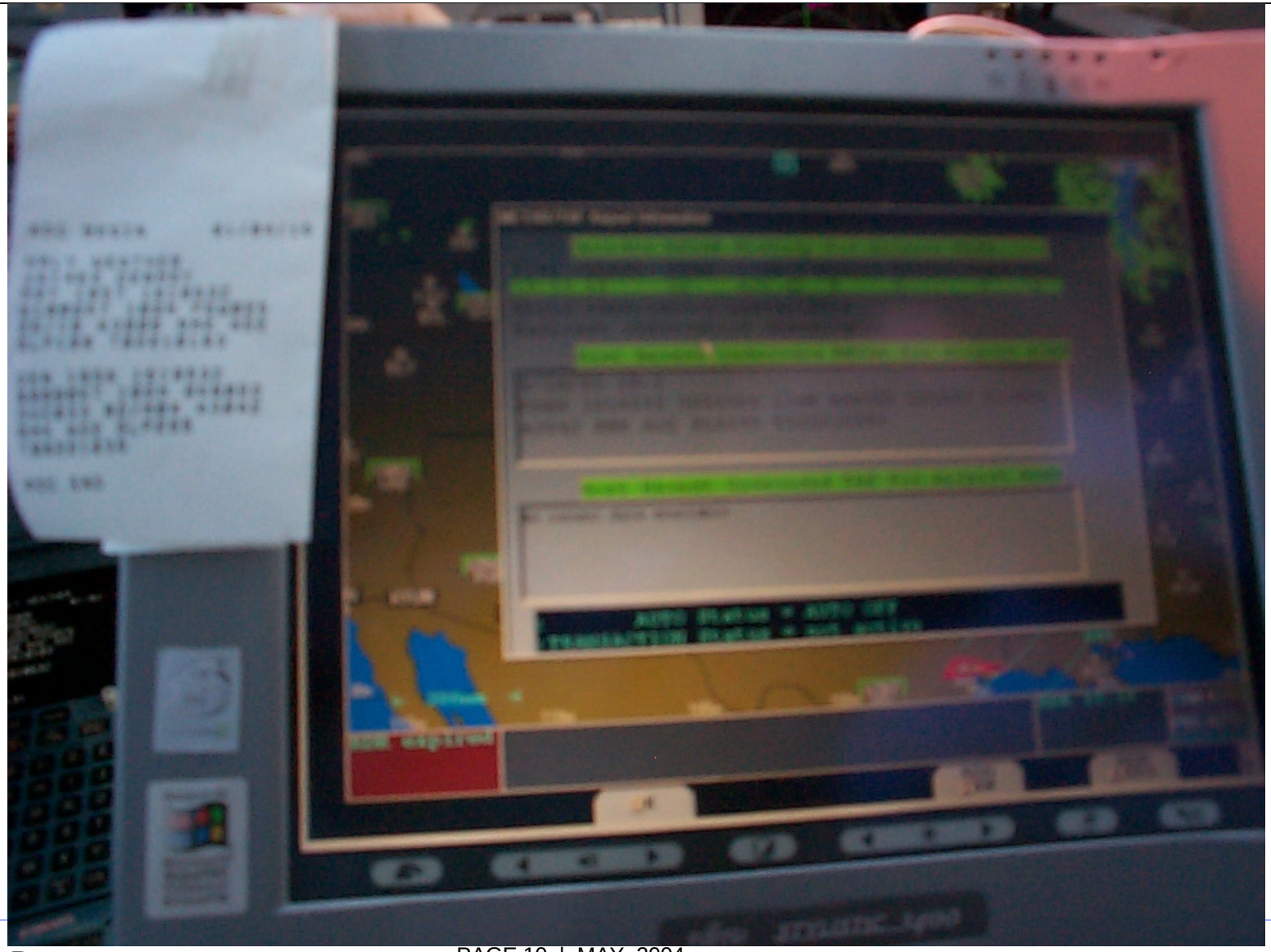
UAL/FAA Surface Moving Map Test

AWC-produced Turbulence plot (altitude normalized)

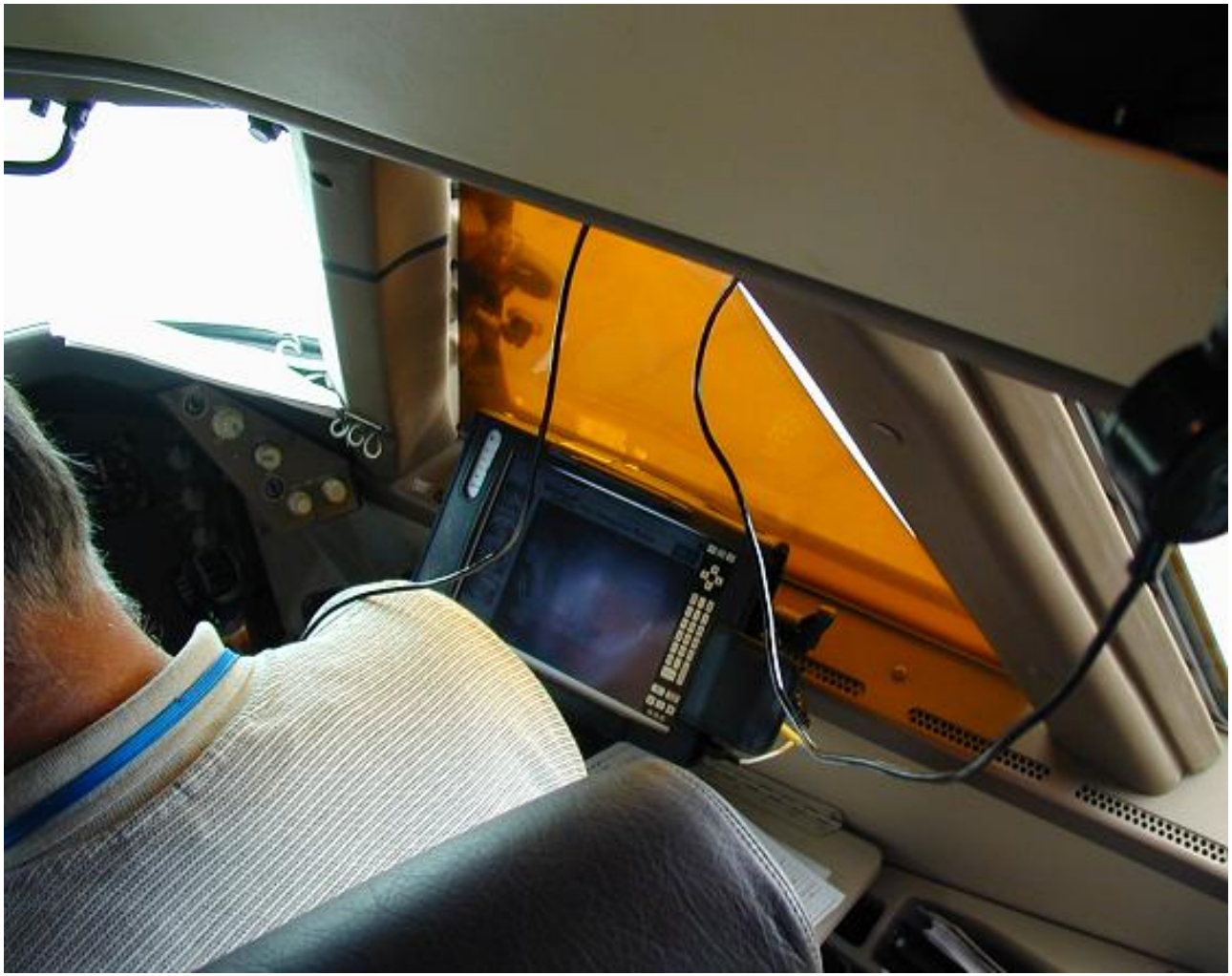
Track-up TBC with SIGMET plot

North-up TBC

ACARS Paper print vs. EFB

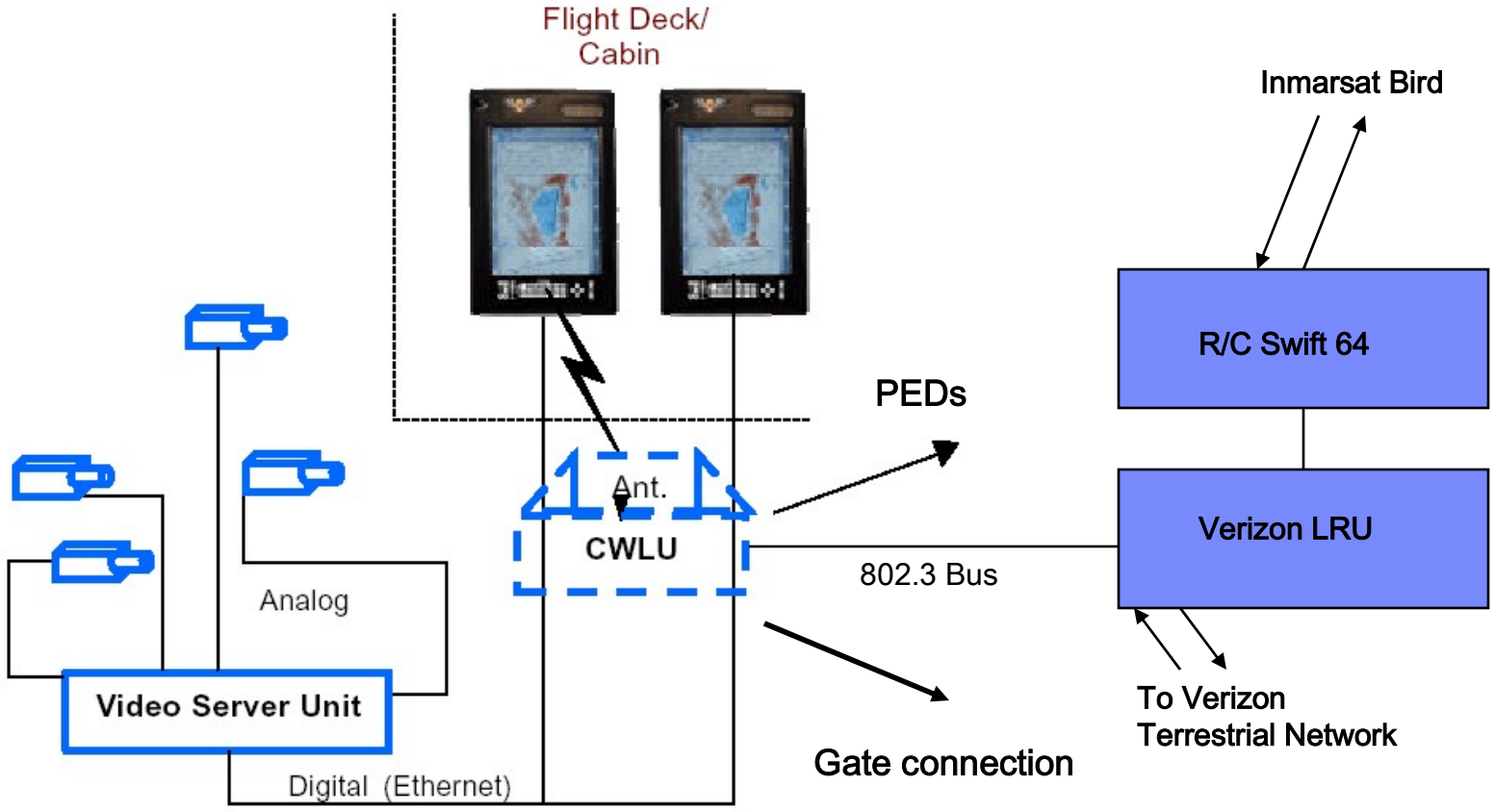


Cabin Surveillance Phase 1 – B747 FO Display Position

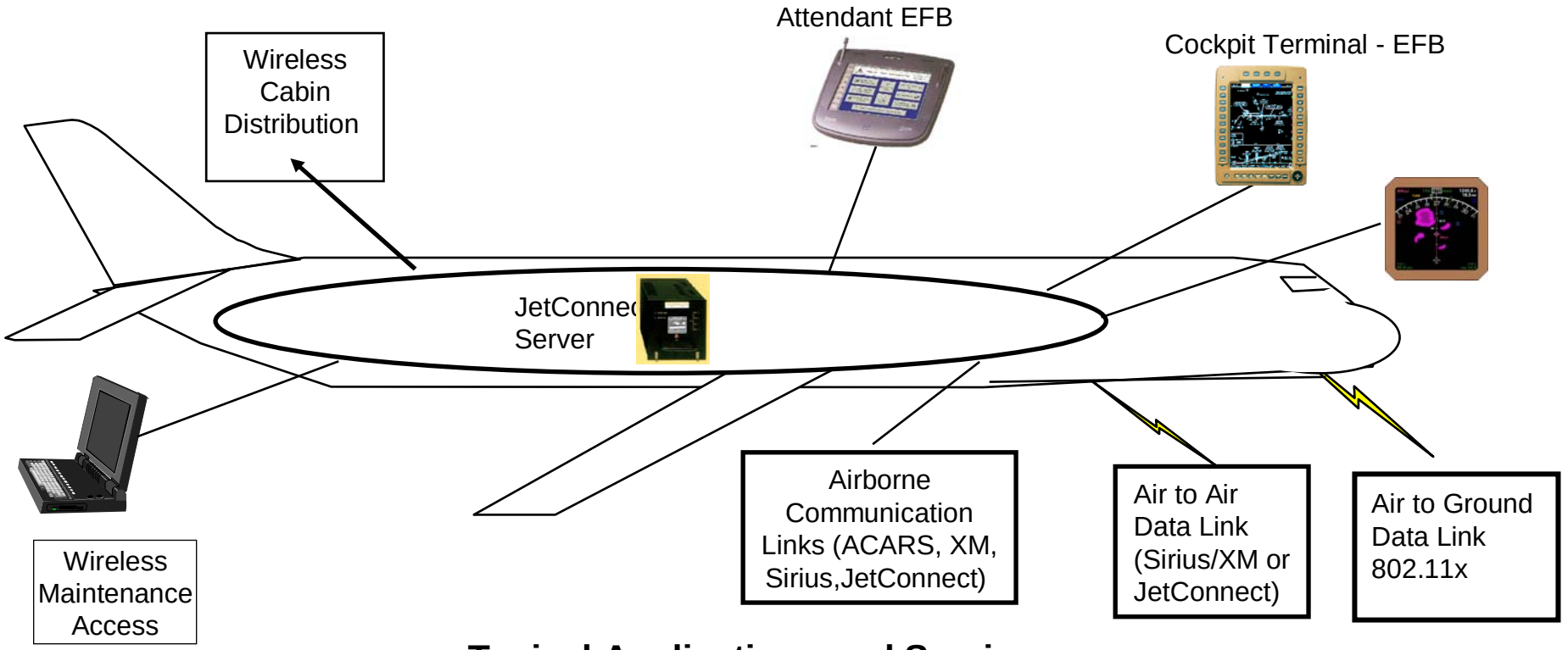


Cabin Surveillance Phase 1 - Wireless Portable Display

B747-400 Cabin Surveillance Phase 2 Evaluation System



AirNet Conceptual Applications

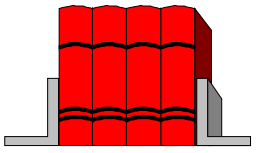


Typical Applications and Services

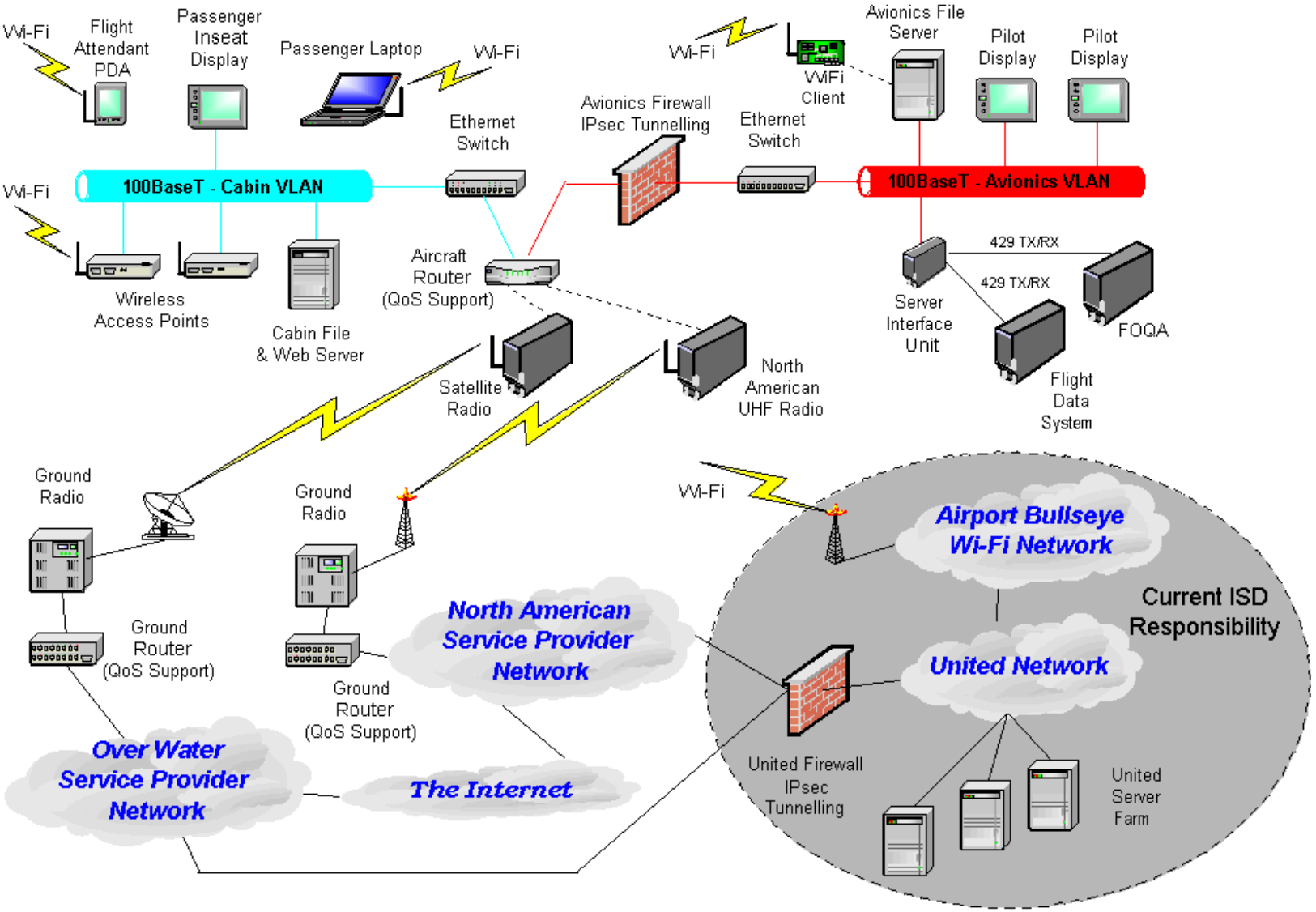
Flight Ops
- Weather
- Electronic Manuals/Charts
- Cabin Surveillance
- Surface Moving Maps
- Flight Papers/Data

Onboard/Passenger
- Rebooking/IRROPS
- Customer Profiles
- Buy On Board
- Live Audio
- Email/WAP Browsing

Maintenance
- *FIX
- Flight Data Downloads
- Electronic Logbook
- Maintenance Data Collection
- Electronic MEL



Air_Net Architecture



AirNet – Phase 1

Phase 1 Scope

Airbus fleet only.

EFBs, charts, and manuals.

Commodity weather data.

Install WiFi throughout Simulator facility

Build end-to-end Lab environment

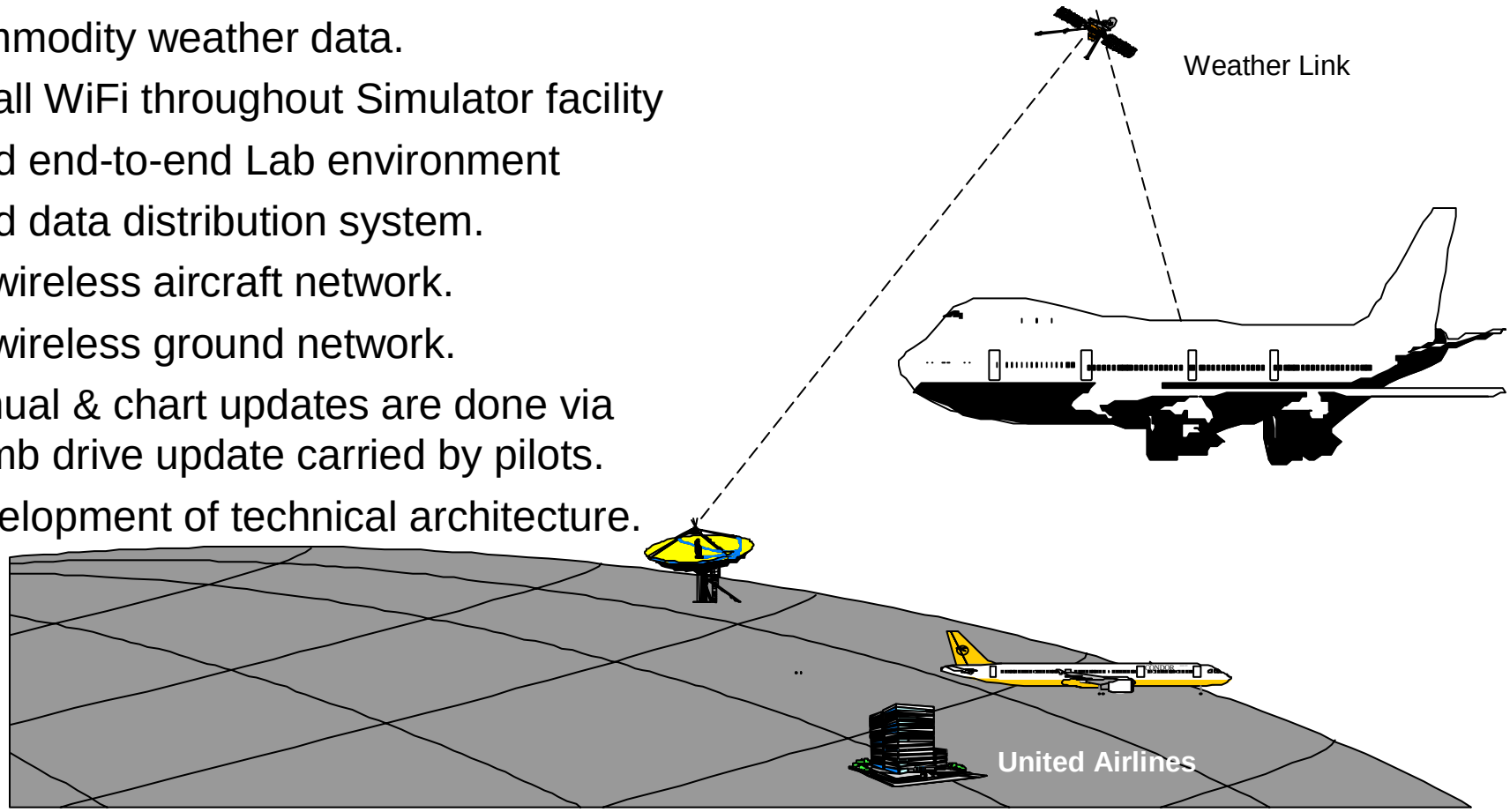
Build data distribution system.

No wireless aircraft network.

No wireless ground network.

Manual & chart updates are done via thumb drive update carried by pilots.

Development of technical architecture.



Source: Flight Standards and technology, 4/04

AirNet – Phase 2

Phase 2 Scope

Deploy on all Boeing fleets. Upgrade the first fleet during regularly scheduled maintenance.

EFBs, charts, manuals, SMM.

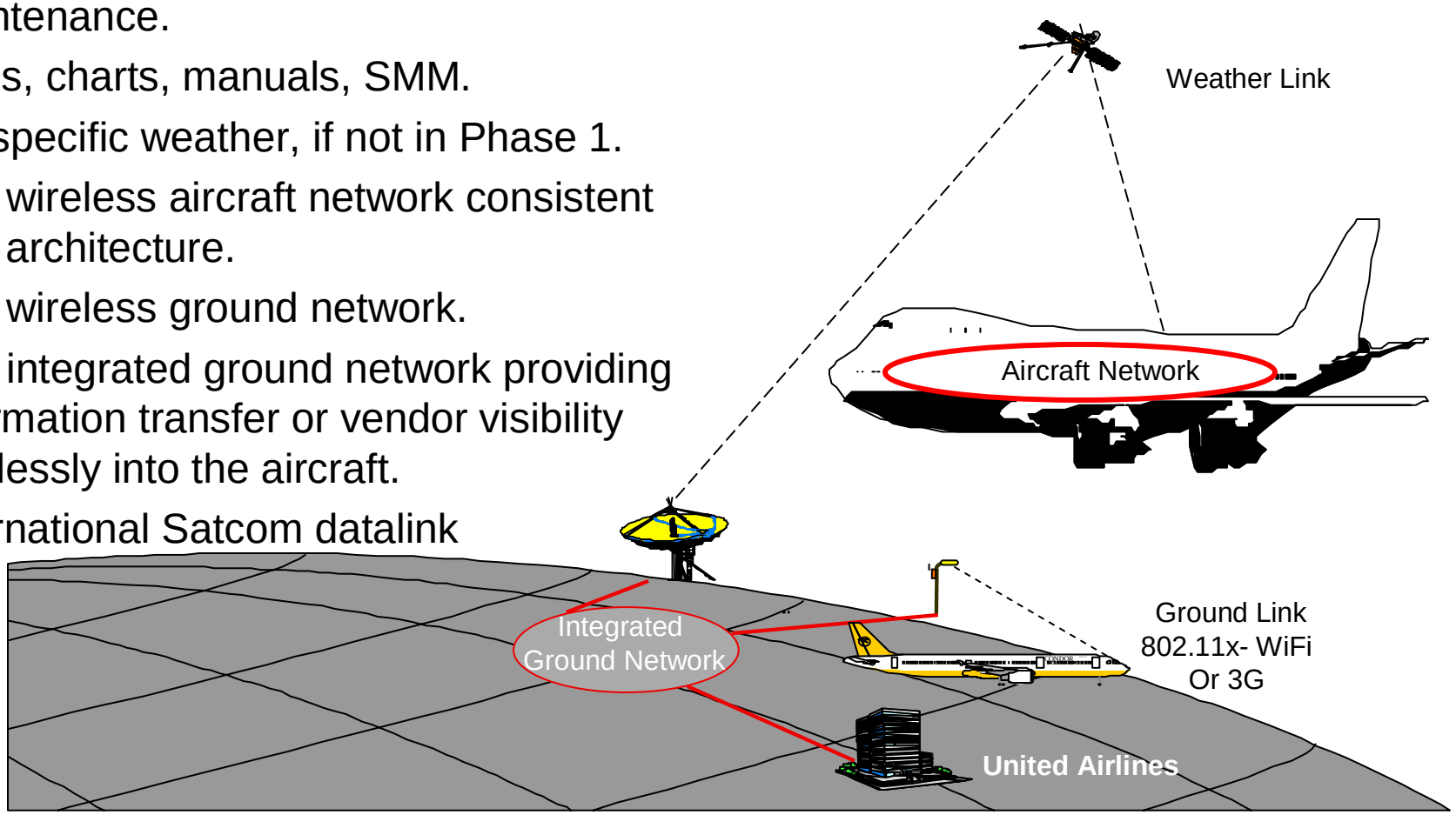
UA specific weather, if not in Phase 1.

Add wireless aircraft network consistent with architecture.

Add wireless ground network.

Add integrated ground network providing information transfer or vendor visibility wirelessly into the aircraft.

International Satcom datalink



Source: Flight Standards and technology, 4/04

AIR_NET Block components

System components (per aircraft):

- two flat panel, touch screen computers in Flight Deck (EFB)
  - articulating mount with 10baseT (802.3) and 28v dc
  - Type 2 Devices
- 802.11x Wireless Access Point and router
- Weather receiver system
- 10baseT (802.3) homerun to server
- ARINC 429 ->10baseT read-only connection
- available port for door camera provisions
- Satcom datalink for international operations?

United's Air_Net process:

- The Capital plan
- Appropriation request process:
  - Justification – savings, infrastructure, or safety (Theme Management)
  - Purchasing – product and system costs
- 4 Separate RFPs
  - EDM System – Back Office
  - Charting Data and software
  - Weather and delivery system
  - EFB, Systems integration, and all other hardware
- Team involvement includes:
  - Flight
  - Engineering/Maintenance
  - Marketing/Inflight
  - Purchasing
  - Outside contractors
  - Stakeholders – FAA, ALPA

Moving Forward:

- Vendor Visits – complete
- Start to narrow down RFP vendors
- Finalize Cost savings
- Write the Appropriation Request
- Negotiate with vendors
- Start Airbus fleet in December
- Start WiFi installations at DEN Flight Center

Questions? Thank You!

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